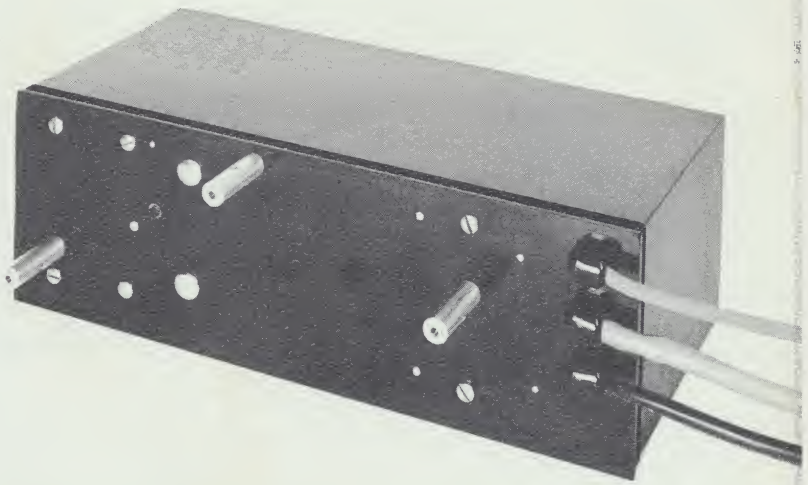
The Mast Model 1420

Digital Servo Unit



The low-cost Model 1420 provides digital-commanded control of shaft rotations for positioning control in any one dimension.

DECIMAL SYSTEM WITH CAPACITY EXPANSION

The Standard Model 1420 is equipped with two decimal coded digital drums, a units drum and a decades drum, for a count capacity of 100. Capacity of the Model 1420 can be expanded to exceptionally high number orders by adding a drum for each additional power of ten desired. Accommodation is built into the Model 1420 for easy expansion to 10,000 (four drums). Provisions for five drums or more will be made upon request. With each digital drum representing a place value in the decimal system, resolution is equal for all place positions. Capacity expansion does not require the digitalizing mechanisms to be made progressively more precise as capacity is increased.

BI-DIRECTIONAL "SHORT WAY HOME" FEATURE

Model 1420 positions bi-directionally on either a continuous loop or closed loop locating cycle. A continuous loop search is one in which the digits represent a circular positioning pattern; the open loop search is one in which the digits represent a linear positioning pattern. In any position change, the servomotor is instructed by a direction-control transfer circuit to move to the new position in the direction that makes the faster approach. For example, any position change of an object in a continuous loop search, such as the pivot of a directional antenna, is achieved in a traverse of 180° or less. A position change of an object in an open loop search, such as a one-dimension movement of a milling machine table, is achieved in a direct movement to the new position. The Digital Servo Unit does not reposition itself at a reference point before finding a new position.

SPEED, ACCURACY, AND BITS PER REVOLUTION

The search speed of the Model 1420 is 17 numbers per second; each revolution of the servo output shaft is within ±1.1% of a digit position, or ±1° of the shaft position.

TORQUE

The torque of the output shaft before breakaway of the slip clutch is 12 oz. in. At clutch slippage, 8 oz. in. of torque is applied to the non-rotating shaft. (Slippage of the clutch does not affect accuracy.)

CONTROL SYSTEMS

The Model 1420 is commanded from two rotary digit switches and an actuator button, or from a two-bank decimal keyboard.

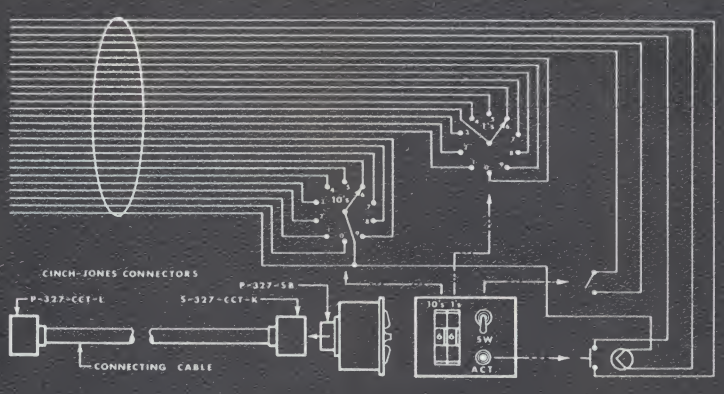
SPECIFICATIONS FOR MODEL 1420:

Dimensions: 12-1/2" by 4-1/4" by 5-15/16"; output shaft protrudes 21/32"; access cover knobs protrude 3/8".

Power requirements: 115 VAC, 25 watts.

Direction of increasing count: clockwise looking at the end of the shaft. Opposite direction available on special order.

Mounting Dimensions: Refer to the illustration.



CONTROL SYSTEM

CUSTOM FEATURES

OCTAL DIGITAL SERVO UNIT

For control from computers or programed tapes, the Model 1420 is equipped with octal coded digital drums. A code converter changes the binary signals to octal. The converters are built to conform with the pulse parameters of the systems with which they are to be used.

MANUAL CONTROLS FOR OCTAL UNITS

Octal rotary digit switches or octal keyboards can be supplied for applications where it is desired to set in commands to the Digital Servo Unit manually. A two-position switch is included with the manual controls for selection between manual and computer command.

EXPANDED CAPACITIES

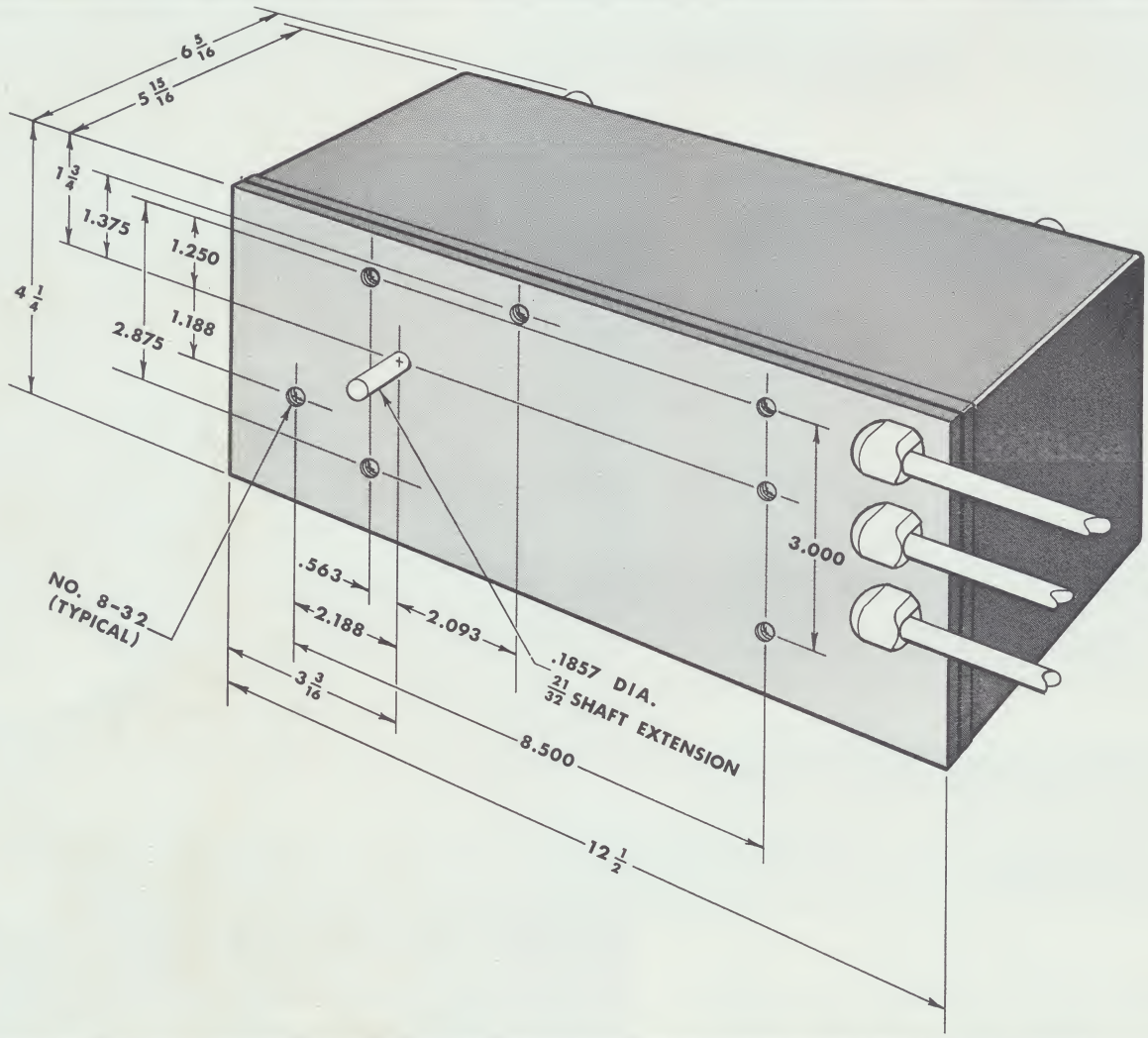
Count capacities of the decimal and octal versions of the Model 1420 can be expanded to 10^4 and 8^4, respectively, with minimal modification to the basic unit. Expansion to higher powers requires some additional modification.

OPTIONAL SEARCH SPEEDS

An optional slow-mode search speed of 30 counts per second is available on special order. Search speed can be further increased to 100 counts per second or higher with a fast-mode attachment.

TORQUE AMPLIFIER

When more than 12 oz. in. of torque is required at the output shaft, a torque amplifier will be supplied to meet your requirements.



THE MAST MODEL 1421 DIGITALIZER

The Digitalizer component of the Model 1420 can be purchased separately as the Model 1421 Digitalizer for use as a shaft position-to-digital converter. This inexpensive unit digitally indicates the position of its shaft within multiple revolutions and fractions of a revolution. Input to the decimal digitalizer is 10 counts per turn of the shaft; 8 counts for the octal version. Readout is transmitted through one wire for each digit plus a common ground for each place value. For further information, please send us data pertinent to your encoding application, and we will furnish you with details and a price quotation.

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PRICE LIST
DIGITAL SERVO UNIT - MAST MODEL 1420

Digital Servo Units		
DSU 1420-S10	Basic Digital Servo Unit (10 base count) Use with Remote Control RAP-S10-C1 or C2.	$1,040.00
DSU 1420-S10Z	Basic Digital Servo Unit (10 base count) with relay provided for "Actuate" button on Remote Control. Use with Remote Control DSU 1420-C1 or C2.	$1,065.00
Remote Controls - "Digit Switch" type with 4 ft. cable (panel mount)		
DSU 1420-S10-C1	Basic Control	$ 180.00
DSU 1420-S10Z-C1	Basic Control with "Actuate" button added	$ 190.00
Remote Controls - Push button type with 4 ft. cable (panel mount)		
DSU 1420-S10-C2	Basic Control	$ 355.00
DSU 1420-S10Z-C2	Basic Control with "Actuate" button added	$ 365.00
Walnut finish Desk Cases for Remote Controls		
	For Controls with number designations ending with C1	$ 30.00
	For Controls with number designations ending with C2	$ 40.00

Additional Remote Control cable length: add $1.25 per ft.

Prices: F.O.B. Davenport, Iowa
Effective November 1, 1964

Delivery: 30 to 60 days

Write or telephone Mast Development Company for information on modifications of this equipment to fulfill your special application requirements.